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MEASURING SELF-REPORTED EXERCISE, MOTIVATION TO EXERCISE, AND SEXISM IN WOMEN

Sydney C. Jensen
Central Washington University, jensens@cwu.edu

MEASURING SELF-REPORTED EXERCISE, MOTIVATION TO EXERCISE, AND SEXISM IN WOMEN

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by

Sydney Christine Jensen

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We hereby approve the thesis of

Sydney Christine Jensen

Candidate for the degree of Master of Science

APPROVED FOR THE GRADUATE FACULTY

_____ _____

Dr. Susan Lonborg, Committee Chair

_____ _____

Dr. Kara Gabriel

_____ _____

Dr. Tonya Buchanan

_____ _____

Dean of Graduate Studies

ABSTRACT

MEASURING SELF-REPORTED EXERCISE, MOTIVATION TO EXERCISE, AND SEXISM IN WOMEN

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The harmfulness and pervasiveness of benevolent sexism is not a well disseminated issue, despite the belief that women are treated with equality in today's society. The current study was designed to investigate whether exercise type and motivation to exercise would predict participants' self-reported benevolent and hostile sexism, particularly in light of gender-related stereotypes about physical activity. A sample of 79 females completed an online survey that included questions about demographic characteristics, primary exercise type (i.e., cardiovascular exercise, weight-lifting, or hobbies), average number hours spent engaging in their primary exercise weekly, exercise motivations, and finally the Ambivalent Sexism Inventory which served as the measure of benevolent and hostile sexist attitudes. Given some participants' difficulty identifying only one primary exercise type as well as multiple motivations to engage in these activities, only the variables of age, weekly hours of weight-lifting, and weekly hours of cardiovascular activity were included in the multiple regression equations used to predict self-reported benevolent and hostile sexism. Methodological problems around measurement of constructs and suggestions for future research are presented herein.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Many people might view sexism as an issue of the past however benevolent sexism is very much alive because it is conveniently camouflaged under false pretenses of chivalry and the ideal of a knight in shining armor (Becker & Wright, 2011). Dardenne, Dumont, and Bollier (2007) showed that women exposed to benevolent sexism experience detrimental effects on working memory task performance. Women facing benevolent sexism are often conflicted between feelings of flattery, self-surveillance in terms of how they fit into the gender stereotypes implied by the benevolent sexism (Calogero & Jost, 2011) and contemplative thoughts of incompetency (Dardenne et al., 2007). These conflicted feelings end up consuming the working memory capacity so that simple tasks end up taking much longer to complete than usual (Dardenne et al., 2007). The present study examines the relationship between female sexist attitudes, exercise type, and exercise motivation. For example; women who weight-lift are not necessarily conforming to traditional gender stereotypes and therefor may display a lower amount of sexist attitudes than would women who primarily engage in cardiovascular exercise and are maintaining the traditional stereotype that women should be thin and fragile.

Hostile and Benevolent Sexism

Glick and Fiske (1996) developed the ambivalent sexism theory dividing sexism into two distinct parts which are hostile sexism and benevolent sexism. Hostile sexism is a form of punishment for women who do not conform to the traditional female

stereotypes whereas benevolent sexism is a reward for women who do conform to these communal roles (Glick & Fiske, 2001). Jost and Kay (2005) explain that the system justification theory, developed in 1994 by Jost and Banaji, is the phenomenon where subordinate groups accept their lesser status that is promoted by the dominate group. The system justification theory explains why many women accept benevolent sexism from men in order to avoid hostile sexism. Jackman (1994) illustrates that subordination and tenderness are united by system justification because the dominant group takes a paternalistic warmth towards the subordinate group so they will stay in their place. Calogero and Jost (2011) add that a greater need for cognitive closure is in line with the system justification theory such that women with a greater need for cognitive closure seem to react to benevolent sexism and stereotypes in a manner that fortifies and preserves gender inequality in society.

Becker and Wright (2011) examined how benevolent sexism compares to hostile sexism when looking at effects on collective action for social change with regards to gender inequality. The authors posit that while hostile sexism induces collective action because it blatantly endorses male dominance over women, benevolent sexism is supported by men and women and thereby reduces collective action because it is unobvious and provides some benefits for women. While hostile sexism values power, control, and negative stereotypes of women; benevolent sexism involves flattering perceptions of women including; protective paternalism which involves the view that women need to be protected and provided for by men, complementary gender differentiation which involves the view that the moral and soft qualities of women

complement and contrast the hard qualities of men, and heterosexual intimacy which involves the view that women satisfy the romantic desires of men (Becker & Wright, 2011). The authors note that while these may seem like positive depictions of women, exposure to benevolent sexism involves condescending undertones which results in an overall decrease in cognitive performance.

Women endorse benevolent sexist beliefs rather than hostile sexist beliefs because people tend to engage in stereotypic behaviors that are positive rather than negative, and therefore collective action is reduced and system-justification is increased because women are fulfilling the expectations and stereotypes aligning with benevolent sexism (Becker & Wright, 2011). The results of this study displayed that exposure to benevolent sexism; caused women to report less intention to engage in collective action, increased gender-specific system justification, increased beneficial views of living as a woman, and increased reports of positive affect. On the contrary, the effects of hostile sexism exposure included; increased reports of intention to participate in collective action, decreased gender-specific system justification, decreased beneficial views of being a woman, and increased negative affect (Becker & Wright, 2011).

A study by Glick, Wilkerson, and Cuffe (2015) examined how masculine identity related to ambivalent sexism and attitudes towards gender subcategories. According to these authors, social identity theory proposes that people who identify rigidly with an ingroup tend to believe in unwavering group confines which define and segregate their group from others. For example, those participants who were strongly identified with their group were more likely to support ingroup favoritism. Their study was designed to

investigate whether masculine identity also promoted outgroup derogation for those gender subgroups that do not conform to the traditional views of masculine men and feminine women. Glick et al. (2015) explain that masculine men and feminine females strengthen gender dichotomization boundaries which is why masculine men favor traditional feminine women and masculine men, creating complementary favoritism. Glick and Fiske's (1996) ambivalent sexism theory also helps explain this complementary favoritism because benevolent sexism allows men to reward feminine women and to use them for roles that complement the man's masculinity, such as allowing the men to 'protect' the women and to provide for them while the women stay busy at home childrearing and doing household chores which are suited for communal females.

For their 2015 study Glick et al. used the widely accepted Ambivalent Sexism Inventory (ASI) which was created by Glick and Fiske (1996) to assess hostile and benevolent sexism. The Glick et al. (2105) findings showed that masculine identification was positively correlated with hostile and benevolent sexism, suggesting that highly identified masculine men hold more traditional gender attitudes. As predicted, masculine identification was positively correlated with favorable outlooks of traditional masculine men (such as career men) and traditional feminine women (such as stay at home mothers). Hostile sexism scores on the ASI were associated with negative evaluations of masculine women, feminist women, and career women (Glick et al., 2015). Not surprisingly, their results also showed that benevolent sexism along with masculine identity scores were correlated with positive views of traditional female subtypes such as

stay at home mothers and feminine women. However it is interesting that the authors also found that benevolent sexism was correlated with positive views of career women. These results are consistent with the notion that hostile sexism is used to punish non-traditional males and females whereas benevolent sexism is used to reward traditional females, with the exception of career women. Glick, et al. (2015) note that it is possible that men now expect women to hold jobs as well in order to help support the family, and are no longer seen as a workplace competitor.

While benevolent sexism can appear to be rewarding for some women, in the long run it is far more harmful than helpful. Calogero and Jost (2011) examined how sexist ideology is related to self-subjugation and objectification among women. In experiment one, the results displayed that when women are exposed to benevolent sexism they show increased; self-objectification, self-surveillance, and body shame, compared to men who were unaffected by the sexism. The exposure to benevolent sexism in this experiment only included stereotypical information about women's alleged warmth as well as their lack of competence, however there were no comments referring to appearance which implies that benevolent sexism is a discreet yet influential prompt of women's self-objectification (Calogero & Jost, 2011). Data from their second experiment demonstrated that women who were exposed to benevolent sexism experienced more self-surveillance and body shame as compared to women exposed to hostile sexism and women exposed to no sexism. Exposure to benevolent sexism also correlated with women's plans for appearance management activities in the next week which was mediated by increased self-surveillance and body shame. The most frequent appearance management activities

planned within the next week as a result of benevolent sexism included physical exercise as well as a desire to lose weight or diet (Calogero & Jost, 2011). While an increased desire to exercise and eat healthy could be beneficial for women's health, the motivations behind this increased desire could prove to be more harmful.

In experiment three, Calogero and Jost (2011) found that the necessity for cognitive closure abated the influence of sexism such that; a stronger demand for cognitive closure correlated with notably more self-surveillance and body shame for women experiencing benevolent sexism. The authors also propose that a lesser necessity for cognitive closure could actually serve as a protection factor for women against benevolent sexism, in terms of self-surveillance and body shame. This experiment demonstrated that both benevolent sexism and complementary sexism (combination of both benevolent and hostile sexism) results in an increase in women's self-objectification through self-surveillance and body image concerns which is mediated by a need for cognitive closure.

Swami and Voracek (2013) examined how men's drive for muscularity related to sexist attitudes and the objectification of women. The authors operationalized sexism as the propensity to disparage women by way of a patriarchal justification that romanticizes the traditional role of women in order to uphold gender inequality in society. The authors found that a higher drive for muscularity in men correlated with increased tendencies to objectify women as well as to endorse sexist and hostile attitudes towards women. Interestingly, the authors also found that the men with a higher drive for muscularity also reported a younger age and a lower body mass index (BMI) which implies that men who

objectify women might also spend more time obsessing about their own body image and appearance, which could suggest an increased self-objectification as well. These results suggest that not only are patriarchal ideologies harmful towards women but they may also be damaging for men who seek to emphasize their power and separation from women through body image, resulting in self-objectification (Swami & Voracek, 2013).

Becker and Swim (2012) conducted a study to see whether specifically addressing the harm and pervasiveness of benevolent sexism could serve to reduce participants' endorsement of these sexist ideologies. Many men and women actually support and rationalize benevolent sexism because they do not see these ideologies as sexist or harmful at all, and by not acknowledging benevolent sexism they also reduce awareness of its pervasiveness (Becker & Swim, 2012). The authors posited that spreading awareness of the harm and pervasiveness of benevolent sexism would help to reduce the endorsement of it. Participants in the study evaluated one of three dating profiles: a man holding benevolent sexist ideologies, a man holding modern sexist ideologies, or a man holding nonsexist ideologies. According to the authors, modern sexism is the belief that gender discrimination is no longer an issue in today's world. Their experimental design was a 2 (Information about the pervasiveness of benevolent sexism; low-pervasiveness, high-pervasiveness) x 2 (Information about the harmfulness of benevolent sexism; low-harm, high-harm) x 2 (Sex; male, female) between subjects design. Participants in the high-harm condition were educated about how damaging benevolent sexism is for women, whereas participants in the low-harm condition were not informed of this. The authors found that participants in the high-harm condition viewed the benevolent sexist

profile as unfavorable and more sexist in addition to personally scoring lower on the Benevolent Sexism scale as compared to participants in the low-harm condition (Becker & Swim, 2012). Their results suggest that explaining the harm of benevolent sexism can actually reduce the endorsement of benevolent sexist ideologies. Regarding pervasiveness, only respondents who were informed of both the high-pervasiveness and high-harmful impacts of benevolent sexism displayed a decrease in endorsement of modern sexist beliefs as well as more unfavorable evaluations of the modern sexist profile, whereas the condition which informed participants of the pervasiveness (and not the harmfulness) resulted in no significant effects (Becker & Swim, 2012). This study demonstrate that educating society about the harmfulness and pervasiveness of benevolent sexism could prove to reduce the endorsement of these beliefs.

Dardenne et al. (2007) examined the negative impact benevolent sexism has on women's performance. The authors explained that while benevolent sexism may seem positive and advantageous for women, it can be detrimental for women's performance because by viewing women as warm, weak creatures it implies that women are incompetent and unable to be without the care and protection of men. Past research has shown that the activation of a group stereotype can cause individuals in this group to conform to these stereotypical traits and behaviors (Dardenne et al., 2007). Therefore by suggesting that women are incapable or inferior, benevolent sexism can result in self-doubt, lower self-esteem, lower self-confidence, all of which can lead to feeling distracted or preoccupied while performing tasks involving working memory (Dardenne, et al. 2007). In their experiment women were given instructions to perform a task

involving working memory including three conditions: (a) a condition where the instructions contained benevolent sexist remarks, (b) a condition where the instructions contained hostile sexist remarks, and (c) a control condition involving no sexism in the instructions.

The authors conducted four experiments to examine the differential effects of sexism on performance (Dardenne et al., 2007). Results of experiment one suggested that women in the benevolent sexist condition did not even acknowledge the instructions as sexist, yet their performance did in fact decrease as compared to the hostile and control conditions where performance was very similar. However, even though women did identify the hostile sexist instructions as sexist, it was noted that the incentive to perform was not impacted by the category of sexism used in the experimental directives. In experiment two, the researchers discovered that increases in revenge and anger were not reported in response to the hostile sexist condition and therefore could not explain differences in performance across conditions. Results of experiment three found that when comparing purely paternalistic benevolent sexism, implying offered help with the task in the instructions, to the purely complementary-gender-differentiation of benevolent sexism, amplified the distinction between men and women in a manner that preferred women. Interestingly, both conditions showed an equal decrease in performance implying that both types of benevolent sexism undermine women's capabilities. Experiment four found that highly-identified women were able to function better than women who had low levels of gender identification, but these results were only seen in the hostile sexist condition and not in the benevolent sexist condition. This results also demonstrated that

women in the benevolent sexist condition reported more mental disruptions including doubt, engrossment with the task, and depreciated self-esteem, and fewer items attempted when compared to the hostile and control conditions. It is also interesting to note that highly identified women reported fewer mental intrusions across all conditions, which suggests that even highly identified women in the benevolent sexist condition who had fewer mental intrusions still suffered from a separate aspect of benevolent sexism because they did not differ in performance when compared to low identified women (Dardenne et al., 2007). Taken together, these four experiments show the detrimental effects of benevolent sexism on women's capacity to perform by impairing working memory.

Benevolent sexism not only negatively impacts working memory performance but can also affect women's cardiovascular health (Salomon, Burgress, & Bosson, 2015). For example, the authors examined how hostile and benevolent sexism impact women's cardiovascular reactivity, which is the response to a stimulus from baseline, and cardiovascular recovery, which is the amount of time after a stimulus that it takes to return to baseline. Both reactivity and recovery rates after a challenging task separately predict the risk for cardiovascular disease. The authors noted that benevolent and hostile sexism could impact cardiovascular recovery and reactivity because anger increases cardiovascular reactivity to stressors while ruminative thoughts, anger inhibition and thought suppression increases cardiovascular recovery time after stressors. Their results indicated that those women exposed to benevolent sexism experienced a longer recovery time as compared to women exposed to hostile sexism and women in the control

condition. In addition, the women exposed to benevolent and hostile sexism reported similar rates of ruminating thoughts which were significantly higher than for the women in the control condition. When women were exposed to hostile or benevolent sexism they also experienced increased anger and displayed increased cardiovascular reactivity.

Salomon et al. (2015) found that hostile sexism resulted in women reporting immediate and high level of anger which recovered rather quickly, as compared to benevolent sexism which resulted in a moderate level of anger that lasted for a longer duration and further impaired cardiovascular recovery times. A recent publication from the Centers for Disease Control (2016) reported that cardiovascular disease is the leading cause of death for women. Interestingly, given the results of the Salomon et al. (2015) study indicating that sexism exposure can cause cardiovascular stress, it is possible that even benevolent sexism could result in an increased risk for cardiovascular disease in women. The authors concluded by suggesting that benevolent sexism is likely more difficult to recover from compared to hostile sexism in regards to cardiovascular health.

Gender Stereotypes

Stereotypes have been defined as categorical based characteristics which are assigned to a group of people stemming from opinions about the people who belong to that particular group (Welle & Heilman, 2007). These group stereotypes cause people to expect the members in the group to act in ways that conform to the stereotypes (Koch, D'Mello, & Sackett, 2015). Gender happens to be a societal category which is easily distinguished therefore stereotypes based on gender have become triggered merely by sight (Banaji & Hardin, 1996). Eagly and Karau (2002) describe social role theory as

people perceiving certain individuals' actions to match that of their inner character. That is to say that the social roles of men and women are created by the activities each gender engages in and the social role theory assumes that these activities should directly correspond to the qualities that gender should have.

While stereotypes are meant to be descriptive in regards to how a group acts, they can also end up being prescriptive with regards to beliefs about how a group should act (Eagly, 1987). There are two basic subtypes of gender stereotypes; communal and agentic (Eagly & Steffen, 1984). Women have been labeled as communal meaning that they possess qualities such as being; dependent, helpful, caring, nurturing, sensitive, and loving, whereas men have been labeled as agentic meaning that they possess qualities such as being; dominant, controlling, aspiring, independent, assuring, and assertive (Eagly & Karau, 2002). The authors noted that the idea that women are communal and men are agentic comes from a long history of women either being homemakers or else holding lower level positions in the workforce and men holding higher level positions in the workforce and considered to be the bread-makers of the family.

Koch et al. (2015) discussed how gender stereotypes can impact how jobs are distributed among the genders. Based on the idea that women are communal and men are agentic, a career that assumes certain characteristics in order to achieve success would cause people to associate the gender with similar stereotyped qualities with that career. The authors gave the example of a CEO requiring qualities such as dominance, aggression, and emotional insensitivity, which are mainly stereotypical male traits rather than female traits and therefore people assume that men make better CEOs than women.

This is called the congruity theory which states that bias occurs because of congruence between career stereotypes and gender stereotypes, implying that the larger incongruence between gender stereotypical characteristics and the career stereotypical characteristics the greater the gender bias will be (Eagly & Karau, 2002). The lack of fit theory is another theory that explains gender bias in the workplace stating that there is a lack of fit between gender stereotypical traits and career stereotypical traits which results in the general consensus that only certain genders can be successful in certain careers based on these stereotyped traits (Heilman & Eagly, 2008). The authors argued that the lack-of-fit model is prevalent in natural settings including both field and quasi-experimental studies, and laboratory studies.

These gender stereotypes have also been found to cause repercussions for those who do not conform to these guidelines (Kark & Eagly, 2010). Those who do not conform to gender norms are often judged by others in society as insufficient which then leads to gender bias (Kobrynowicz & Biernat, 1998). Koch et al. (2015) give an example of a female with agentic qualities applying for a stereotypically masculine career, who is punished for not conforming to gender stereotypes by not being hired. This predicament causes highly qualified women to be less likely than men to be hired for masculine careers (Koch et al., 2015). This is based on the role congruity theory which the authors explain as agentic women being punished for status violations that disrupt the gender hierarchy. This study displayed that the reasoning for backlash towards agentic women in the workplace serves to maintain the double standard with the purpose of upholding male dominance. The authors explain that this double standard refers to how women must

display masculine characteristics in order to seem qualified for stereotypically masculine careers, and yet these women are chastised for disturbing the gender norms.

While gender segregation in professional careers has been gradually declining (Pettit & Hook, 2009), according to the U.S. Department of Labor in 2011 occupations continue to display inconsistent gender distributions (Koch et al., 2015). Gender bias for a career can occur even when the job has no stereotypically gendered requirements, but simply because there is a disproportionately represented gender working at that job (Glick, 1991). Gender stereotypes in a job have been found to be related to the gender dispersal of that job even though they are theoretically distinct (Cejka & Eagly, 1999). This study found that participants viewed high prestige occupations to require masculine personality traits and cognitive ability in order to be successful, and they also believed that occupations with higher earnings required masculine personality traits. Koch et al. (2015) give the example of a boss who is looking to hire someone in a workplace with typically more men than women, therefore regardless of the actual requirements of the job, his image of a successful employee is male simply because there are more males working in that particular field. The authors explain that those applying for careers that are congruent with the gender stereotypes of that career are more positively assessed compared with those going against the gender norms.

Stereotype threat occurs when an individual experiences a psychological dilemma in which they worry that their performance will be judged based on a negative stereotype attached with their ingroup (Steele, 1997). Stereotype threat has proven to be detrimental for intellectual performance when negative stereotypes are activated (Steele, Spencer, &

Aronson, 2002). Past research has shown that when individuals are asked group identifying demographics after rather than before a performance test, performance due to stereotype threat can be reduced by up to 33% (Danaher & Crandall, 2008). Stereotypes represent cognitive perceptions of members belonging to a certain group and have been found to increase an individual's certainty that a member of a group is accurately portrayed by the prescribed stereotypes (Clark, Wegener, Brinol, & Petty, 2009). These researchers deducted that the certainty effect occurs when an individual receives information about the person being judged by multiple sources in support of this perception, therefore increasing the certainty of the perception. Clark, Thiem, Barden, Stuart, and Evans (2015) give the example; when an individual perceives someone to be unintelligent they are later more certain of this judgement when they learn that that person has a low socioeconomic status.

Steele (1997) compared Black and female students to White and male students in regards to how the former two experience similar stereotype threat in classrooms. This worry can result in the individual feeling pressured and stressed about their performance which can cause lowered self-confidence related to the task and decrease their potential performance (Clark et al., 2015). Steele and Aronson (1995) found that when stereotypes involving intellectual ability were evoked by simply having participants self-report their race before taking an exam, Black students perform worse than White students. However, when the students were not asked to report race prior to the test, both races performed equivalent to their pretest scores. The authors suggested that simply switching the

demographic questions to the end of tests could reduce the risk of stereotype threat in academic situations.

Current Hypotheses

The original purpose of this study was to investigate the effects of primary exercise type and motivation for exercise on self-reported sexist attitudes among women. I initially hypothesized that women who primarily engaged in weight-lifting exercises would score lower on the measure of benevolent sexist attitudes compared to women who primarily engaged in cardiovascular exercise or no exercise. The second hypothesis was that women who primarily engaged in cardiovascular exercise would report motivations to exercise involving body image and appearance whereas women who primarily engaged in weight-lifting would more often report motivations to exercise involving positive health and strength. Given perceived problems with measurements of primary exercise type and motivations (i.e., that many participants reported engaging in more than one type of exercise), I revised the original hypothesis as follows: Weekly hours spent weight lifting and weekly hours engaged in cardiovascular activity would, in addition to participant age, significantly predict attitudes toward benevolent and hostile sexism.

CHAPTER II

METHODS

Participants

Participants were women ages 18 and older, ranging in age from 19 to 62, who were recruited from Central Washington University. Demographic data for these participants are provided in Table 1. Participants were recruited using a posted announcement on SONA which is the Department of Psychology's site used for recruiting students to participate in research studies on campus or online. C-port is a communication management system which was used to contact current CWU students and provide them with an invitation to participate in this study. To recruit a wider age range of women, an announcement was also posted in *Central Today*, which is a daily news bulletin emailed to all CWU faculty and staff. All three announcements contained the same general information about the study and how to participate (Appendix A). In order to make the study more readily accessible to prospective participants, data were collected online using the survey program Qualtrics. Once the informed consent was read and agreement to participate was obtained, participants were asked to report the primary form of exercise that they engage in on average weekly (weight-lifting, cardiovascular exercise, both, or hobbies) as well as the number of hours per week on average that they engage in their primary activities. The 'other activities such as hobbies' section was added in order to recruit participants who do not engage in high levels of exercise.

Table 1.

Participant Characteristics

Characteristic	*n*	%	*M*	*SD*
Age	79		32.03	12.31
Religion				
Not Reported	27	34.2	-	-
Christian	22	27.8	-	-
None	18	22.8	-	-
Atheist	6	7.6	-	-
Agnostic	5	6.3	-	-
Spiritual	1	1.3	-	-
Gender				
Female	78	98.7	-	-
“Transgender Born Female”	1	1.3	-	-
Ethnicity				
White	55	69.6	-	-
Not Reported	13	16.5	-	-
Hispanic	7	8.9	-	-
Multiracial	2	2.5	-	-
American Indian	1	1.3	-	-
Asian	1	1.3	-	-
CWU Status				
Student	43	54.4	-	-
Staff Member	28	35.4	-	-
Faculty Member	6	7.6	-	-
Not Reported	2	2.6	-	-
Education				
Only High School Diploma	1	1.3	-	-
Some College	39	49.4	-	-
Bachelor’s Degree	21	26.6	-	-
Master’s Degree	13	16.5	-	-
Doctorate/Post-Doctorate	5	6.3	-	-

Materials

The materials and procedure for this study were based on the studies conducted by Dardenne et al. (2007) and by Salomon et al. (2015). Each of these previous studies used the ASI to examine how women perceive benevolent and hostile sexism. In order to measure women's motivation to exercise, categories were developed based on the Exercise Motivations Inventory (EMI-2) used in the study conducted by Zając and Schier (2011). The EMI-2 is designed to examine women's body image dysphoria and motivation to exercise when participating in yoga or aerobics.

The Ambivalent Sexism Inventory (ASI). In order to evaluate hostile and benevolent sexist attitudes in participants, the Ambivalent Sexism Inventory created by Glick and Fiske (1996) was used in the current study. The ASI contains three subcomponents found in hostile and benevolent sexism which include; either dominative or protective paternalism, competitive or complementary gender differentiation, and hostile or intimate heterosexuality. The ASI was created to be administered and completed quickly with simple scoring procedures. Data were drawn across six studies involving 2,250 individuals including students and nonstudents, men and women, examining factor analyses with regards to validity and reliability. The researchers were able to reduce the initial 140 statement questionnaire to a 22 item questionnaire requiring the respondent to report their agreement or disagreement on a scale of 0; indicating strong disagreement, to 5; indicating strong agreement. The Goodness of Fit in Study 1 and Study 2 were .92 and .91 respectively which indicates that the factor structure for male and female respondents was similar. The alpha reliability coefficients across the six

studies ranged from .83 to .92 which the authors noted to be acceptable. Across all studies there was a significant main effect of gender with males scoring higher than females on the ASI. Pairwise comparisons from each study revealed that, with the exception of study six, males scored higher on hostile and benevolent sexism than did female participants. In test of concurrent validity, the ASI scores correlated with the Attitudes Towards Women Scale, the Old Fashioned Sexism scale, the Modern Sexism Scale, and the Rape Myth Acceptance Scale. Correlations ranged from .42 to .63. As a predictor of females' ambivalent attitudes towards women, the ASI correlates with ambivalence in feminine traits for non-student females (.41 to .43), and for female undergraduate students (.52). Across three studies a mean range of 65-76% of men and women ascribed positive feminine traits to women, a mean range of 48-56% of men and women ascribed positive masculine traits to women, a mean range of 38-50% of men and women ascribed negative feminine traits to women, and a mean range of 32-41% of men and women ascribed negative masculine traits to women.

Design

The present study used a correlational design to investigate the significance of participant age, hours of weight lifting, and hours of cardiovascular exercise per week as predictors of self-reported benevolent and hostile sexism.

Procedure

Following formal approval by the Institutional Review Board, participants were recruited through the C-PORT email announcement to students, SONA, and a notice in *Central Today.* The study was posted for several weeks on Qualtrics, a period during

summer quarter that was long enough to recruit a sufficient number of participants. All surveys were conducted online through the survey program called Qualtrics. The first document the participants saw was the informed consent form (Appendix A) which, among other things, let participants know that no personally identifying data would be collected. Once the informed consent form was read and agreed to, participants were asked to report what activity they primarily engaged in on a weekly basis (i.e., weight-lifting, cardiovascular exercise, both, or other hobbies), to provide demographic data and motivations for exercise, and complete the ASI. The demographic section (Appendix B) included questions such how many hours per week on average that the participant engages in each activity (weight-lifting, cardiovascular, or other hobbies). Using the Exercise Motivation Inventory-2 (EMI-2; Zajac & Schier, 2011) as adapted for the current study, participants were also asked to indicate what their primary motivation to engage in each activity is from a list of motivations based on categories from the EMI-2. Upon completion of these study measures, participants were presented with the post-study information (see Appendix D) that explained, in detail, my intentions to investigate the relationships between primary exercise type, exercise motivation, demographic information, and sexist attitudes in women. After reviewing this post-study information, participants were instructed to exit their web browsers.

CHAPTER III

RESULTS

Data Screening

The data were screened prior to conducting the planned statistical analyses. Of the 98 total participants there were 19 whose data were dropped from further analysis. First, 2 males were dropped because they did not meet the gender requirement for this study; 3 individuals did not endorse the consent to participate; and finally, 14 failed to complete the ASI instrument. The final sample of 79 females included one participant who identified as "transgender (born female)." Skewness and kurtosis statistics for age met the assumptions of normality; however, the number of hours weight lifting and engaging in cardiovascular activity were non-normal and required transformation to square root scores on each of these variables. SPSS was used to create the scale scores for benevolent, hostile, and composite sexism from the individual ASI scores. As per the ASI authors' instructions, means for each of the sexist scores for each participant were used for subsequent statistical analyses. Therefore, mean scores on each subscale could range from 0 to 5, with higher scores indicating that the participant has a greater level of sexist attitudes (i.e., benevolent, hostile, or composite).

Correlational Data

As seen in Table 2, participants' age was significantly correlated with all three sexism scale scores. Age negatively correlated with the mean benevolent scores $r(79) = -.31$, $p = .001$, mean hostile scores $r(79) = -.37$, $p = .001$, and mean composite scores

$r(79) = -.39$, $p < .001$. Additionally, all ASI subscales demonstrated significantly positive correlations with each other.

Table 2.

Means, Standard Deviations, and Intercorrelations for Age and ASI Scale Scores

Variable	*M*	*SD*	1	2	3	4
1. Age	32.03	12.31	-	-.31	-.37	-.39
2.¶Mean ASI Benevolent	1.69	0.89	-	-	.58	.88
3.¶Mean ASI Hostile	1.75	0.97	-	-	-	.90
4. Mean ASI Composite	1.72	0.82	-	-	-	-

Note. All Pearson-*r* correlation coefficients with age were significant ($p < .01$) as were correlations between the ASI scales ($p < .001$).

Tests of the Hypothesis

As visualized in Table 3, most of the women who participated in weight lifting also reported that they engaged in cardiovascular exercise on a weekly basis; as such, it was difficult to identify most participants' primary exercise activity. Given this challenge, two separate multiple linear regression analyses were planned as tests of the hypotheses that the number of hours participants spent weight lifting or engaging in cardiovascular activities would independently predict the ASI benevolent and ASI hostile

Table 3.

Descriptive Statistics for Number of Hours Weekly in Each Activity Category

Variable	*n*	%	*M*	*SD*
Weight lifting Hours Weekly	44	55.7	1.74	2.62
Cardio Hours Weekly	71	89.9	4.12	4.28
Hobby Hours Weekly	75	94.9	10.53	12.17

sexism scores. Given the significant positive correlation between age and these ASI scales, age was also included as a predictor variable for these two regression analyses.

Screening. Prior to performing the regression analyses, tests for multivariate outliers and multicollinearity were conducted. After calculating Mahalanobis Distance scores for each case, only one participant was identified as a multivariate outlier and was thus deleted from further analyses. The VIF and tolerance scores for both of these analyses were within acceptable limits (e.g., tolerance > .2) for meeting the assumption regarding multicollinearity. Using Green's 1991 formula (Tabachnick & Fidell, 2013) for estimating necessary sample size (i.e., N=50+8m), the number of participants (n = 78) used in the regression analyses was likely sufficient. Finally, given that two regression analyses were performed, the Type I error rate (α) was adjusted from .05 to .025 for each test.

Results. The first regression analysis was used to predict the mean Benevolent Sexism scores from the predictors of participant age, weight lifting hours, and cardio exercise hours $F(3,74) = 4.24$, $p = .008$, adjusted $R^2 = .15$. As indicated in Table 4, only age proved to be a significant predictor of benevolent sexism ($p < .01$), with higher scores on age indicated less benevolent sexism. The unique effect of age (8%) on the total variance in these scores was estimated by the squared semi-partial correlation coefficient ($sr^2 = .08$).

Table 4.

Multiple Linear Regression Predicting Mean ASI Benevolent Scores

Predictor	*B*	*SE B*	*β*	*t*	*p*	sr^2
Age	-.02	.01	-.28	-2.57	.012	.078
SQRT Weight lifting Hours	.22	.11	.24	1.99	.051	.044
SQRT Cardio Hours	-.04	.11	-.05	-.40	.692	.002

Next, a multiple regression analysis was conducted using age, weight lifting hours, and cardio exercise hours to predict the mean Hostile Sexism scores $F(3,74) = 5.70$, $p = .001$, adjusted $R^2 = .19$. Once again, age was the only significant predictor ($p < .003$, see Table 5). The squared semi-partial correlation coefficient for age ($sr^2 = .10$) indicated the unique contribution of age (e.g., 10%) to the total variance observed in mean Hostile Sexism scores.

Table 5.

Multiple Linear Regression Predicting Mean ASI Hostile Scores

Predictor	*B*	*SE B*	*β*	*t*	*p*	sr^2
Age	-.03	.37	-.32	-3.03	.003	.102
SQRT Weight lifting Hours	.08	.12	.08	.70	.486	.005
SQRT Cardio Hours	.18	.12	.18	1.56	.124	.026

ASI Norms

Table 6 provides a comparison of the descriptive statistics for the current sample on the ASI scales and the normative data provided by Glick and Fiske (1996). Visual inspection indicates that the mean for Benevolent Sexism was slightly lower in the current sample, whereas the mean for Hostile Sexism is slightly higher. Standard deviations for each scale are similar in both studies.

Table 6

Current ASI Results Compared to Previous Research Findings

	Current		Glick&Fiske (1996)[a]	
ASI Scale	*n*	*M*±*SD*	*n*	*M*±*SD*
Benevolent Sexism	79	1.69±0.89	76	1.90±0.94
Hostile Sexism	79	1.75±0.97	76	1.66±1.05
Composite Sexism	79	1.72±0.82	76	1.78±.089

[a] Study 5 data

Exploratory Analyses

Visual data for motivations to exercise and types of exercise or hobby activities were also examined (see Appendix E), largely for the purpose of designing future measures or studies. Several important trends in frequency of motivation are observed (see Table 7). First, motivations to exercise appear to vary somewhat depending on both the type of exercise (i.e., weight lifting, cardio) and the number of hours engaged in these activities. As indicated in Table 7, those who reported engaging in hobbies each week most often reported enjoyment as the motivation for doing so. In contrast, weightlifting participants most often reported strength and endurance, positive health, and appearance as their motivation to lift. Those who engaged in cardiovascular activity each week most frequently reported weight management, positive health, and stress management as their reasons for doing so. Second, the nature of activities reported within each type of exercise ranged considerably as well. Finally, the kinds of hobbies as well as the amount of time spent engaged in them showed tremendous variability. Taken together, the motivations for and types of exercise varied more widely than anticipated when originally designing this study.

ASI Reliability Coefficients. Coefficient alphas were calculated for the current ASI scales and compared to those reported previously. In Glick and Fiske's (1996) reported data for a total of 2,250 male and female participants from 6 studies, the alpha coefficients ranged from .83 to .92, indicating a generally acceptable level of internal

consistency. In the current study, the Cronbach's alpha for the ASI was also high (α = .91).

Table 7

Descriptive Data for Motivations to Exercise by Activity Type

Motivation	Activity Type	*n*	*%*[a]
Stress Management	Weightlifting (*N*=44)	5	11.36
	Cardiovascular (*N*=71)	9	12.67
	Hobbies (*N*=75)	14	18.66
Weight Management	Weightlifting	4	9.09
	Cardiovascular	19	6.76
	Hobbies	0	0.00
Positive health	Weightlifting	9	20.45
	Cardiovascular	14	19.71
	Hobbies	0	0.00
Appearance	Weightlifting	11	25.00
	Cardiovascular	4	5.63
	Hobbies	0	0.00
Strength and Endurance	Weightlifting	11	25.00
	Cardiovascular	8	11.26
	Hobbies	0	0.00
Enjoyment	Weightlifting	1	2.27
	Cardiovascular	8	11.26
	Hobbies	52	69.33
Revitalization	Weightlifting	0	0.00
	Cardiovascular	2	2.81
	Hobbies	4	5.33
Health pressures	Weightlifting	3	6.81
	Cardiovascular	2	2.81
	Hobbies	1	1.33

Ill-health avoidance	Weightlifting	2	4.54
	Cardiovascular	4	5.63
	Hobbies	0	0.00
Challenge	Weightlifting	2	4.54
	Cardiovascular	0	0.00
	Hobbies	2	2.66
Social Recognition	Weightlifting	0	0.00
	Cardiovascular	1	1.41
	Hobbies	1	1.33
Affiliation	Weightlifting	0	0.00
	Cardiovascular	0	0.00
	Hobbies	2	2.66
Nimbleness	Weightlifting	0	0.00
	Cardiovascular	1	1.41
	Hobbies	0	0.00

[a] Percentage of participants in the activity category who report each type of motivation

CHAPTER IV

DISCUSSION

The original purpose of this study was to examine differences in sexist attitudes among women who engage in different forms of exercise. Thus there were three original hypotheses based on this purpose. However, as noted in the previous chapter, visual inspection of the data indicated that it would be very difficult to actually divide the current sample into distinct exercise groups. Instead, the multiple regression analyses were used in this study to test a new hypothesis that participant age, hours spent weight lifting, and hours spent in cardiovascular activities would significantly predict both benevolent and hostile sexism as reported on the ASI.

Research Findings

Results of the regression analyses for both Benevolent Sexism and Hostile Sexism scores indicated that participant age was the only significant predictor of these ASI scale scores. Visual inspection of the motivations to exercise and engage in hobbies suggested potentially different patterns in these reasons among those who engage in each of these types of activities. More specifically, those participants who engaged in weight lifting more than three hours per week most often reported doing so for positive health or for strength and endurance. In contrast, participants who engaged in cardiovascular exercise more frequently mentioned doing so for appearance or weight management reasons. Finally, enjoyment was reported as the most common reason for participating in hobbies. Taken together these findings suggest that future researchers might consider developing

more sophisticated and reliable methods of collecting data about types of, and motivations for, exercise.

Relation to Previous Literature

The view that women need to be protected by men and that women are supposed to be soft and warm and in stark comparison to men has been described previously (e.g., Becker & Wright, 2011). The body of literature on sexist attitudes also suggests that women endorse benevolent sexism because people tend to engage in stereotypic behaviors that are positive rather than negative, therefore these women who display benevolent sexist attitudes should also be aligning with these traditional stereotypes. In the present study, the number of hours spent lifting weights or engaging in cardiovascular exercise each week did not significantly predict scores on either the Benevolent or Hostile Sexism scales, suggesting that, as measured, there was no association between exercise type and the endorsement of stereotypical attitudes toward women.

An interesting finding that has not been reported in past literature was the significant effect of age on sexist attitudes, such that older women displayed significantly lower levels of all three types of sexism (benevolent, hostile, composite) when compared to younger women. In the current sample, age appears to be associated with educational level with younger participants disproportionately reporting only “some college” compared with the educational levels of those who were older. In fact, one previous study found that scores on the ASI scales decreased as educational level increased (Garaigordobil, 2013).

Limitations and Suggestions for Future Research

Given that the title of the study was listed in the participant recruitment materials, it is possible that those individuals who do not engage in regular exercise simply did not enroll in the study. In fact, only 6 of 79 participants reported no hours of exercise, on average, in a one-week period. The format of the ASI questions on the Qualtrics survey made it difficult for many participants to figure out how to answer each sexist statement with a 0 (i.e., *strongly disagree*). More specifically, some participants were able to identify the procedure for changing their answers from 1 to 0, whereas one participant contacted the researcher and stated she was unable to do so. Consequently, it is possible that some participants left their answer as 1 (i.e., *disagree somewhat*) rather than changing to 0 (i.e., *strongly disagree*). This could have caused the mean sexism scores to appear higher than they were intended to be by participants. Although the original ASI authors recommended use of 0 as the low-end anchor, I suggest that future researchers use a different format (i.e., 1 instead of 0) so that participants can easily indicate when they disagree strongly with the ASI statements.

As mentioned previously, the obtained data displayed considerable overlap in the types of exercise participants reported as their primary one. More specifically, some participants responded in ways that suggested that they engaged in more than one exercise type. The data did not show an appropriate range of cardiovascular exercise such that there was no group that primarily engaged in cardiovascular exercise with which would be compared to the primary weight-lifting group in regards to sexist scores. Therefore, in the future it would be prudent to obtain a more diverse sample that included

a greater variety of self-reported exercise activities. Structuring the survey in such a way that forces participants to endorse only one primary type of exercise would also help more clearly define this variable. It may also be helpful to include exercise-related identification variables in the demographic questionnaire; for example, do participants self-identify as competitive athletes, bikini competitors, or powerlifters. The motivations to exercise questions should be modified as well, perhaps by limiting the number of different motivations a participant can endorse. In light of the findings presented in Chapter 3, it is possible that motivations for exercise may be more useful than exercise type in understanding participants' self-reported sexist attitudes toward women. Future research might recruit participants from local gyms rather than rely solely on participants who are members of the Central Washington University community.

Summary

Despite these limitations the present study has added some interesting findings to the literature. The negative correlation between age and ASI scale scores such that older women reported less sexist attitudes when compared to younger women is a finding that should be further explored in future studies. In addition, while hours spent lifting weights or engaging in cardiovascular exercise did not significantly predict participants' sexist attitudes in the current study, I recommend that future researchers investigate these variables with larger and more diverse samples as well as with more refined measures of exercise type and motivation. Lastly, results of this study also provide evidence that benevolent and hostile sexism are not issues of the past but are still present in women's

attitudes; therefore, there is a need to continue to educate women about the harmfulness and pervasiveness of sexism.

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Appendix A

Participant Recruitment Scripts

Psychology Department's SONA System

Title: Women and Exercise

Principal Investigator: Sydney Jensen, Graduate Student

Faculty Sponsor: Dr. Susan Lonborg, Professor of Psychology

Study Description: This study investigates the relationship between women's exercise-related activities and their gender-related attitudes. Participants will be asked to provide basic demographic information (e.g., age, gender) and then complete two measures related to exercise and gender-related attitudes.

Participant Requirements: Female students ages 18 and older.

Time Required: 10-15 minutes

Extra Credit Points: 1

Central Today Announcement

Sydney Jensen, a graduate student in the Psychology Department is seeking CWU female students, staff, and faculty members to participate in an online thesis research study on women, exercise, and gender-related attitudes. For more information, please click on the following link to the anonymous survey posted on Qualtrics:
[insert Qualtrics link here]

C-PORT Student E-mail Announcement

Greetings! Sydney Jensen, a graduate student in the Psychology Department is seeking CWU female undergraduate and graduate students to participate in an online research study on women, exercise, and gender-related attitudes. For more information, please click on the following link to the anonymous survey posted on Qualtrics:
[insert Qualtrics link here]
Thank you.

Appendix B

Online Consent Information

What you should know about this study:

You are being asked to join a research study. This consent form explains the research study and your part in the study. Please read it carefully and take as much time as you need. You are a volunteer. If you do join the study and change your mind later, you may quit at any time without fear of penalty or loss of benefits.

Why is this research being done?

This research is being done to gather information about women's personal experiences with exercise and their gender-related attitudes.

Who can take part in this study?

If you are a student, staff member, or faculty member, at Central Washington University (CWU), at least 18 years old, and can read and write in English, you qualify for this study.

What will happen if you join this study?

The questions in this online survey should take between 10 and 15 minutes of your time to complete. If you decide to complete the online survey you will be asked to do the following:

- answer a few questions about your background (e.g., age, gender) and how you found out about this study
- answer questions about the types of exercise you typically engage in and your reasons for doing so
- respond to items inquiring about your gender-related attitudes

What are the risks or discomforts of being in the study?

There are no known risks or discomforts associated with this study.

Are there benefits to being in the study?

Although there are no direct benefits to the participants, the findings will provide information about women's experience with different types of exercise, their motivations to exercise, and their attitudes related to gender.

What are your options if you decide not to participate in this study?

If you do not join this study it will not affect your grade in any class, your employment status at CWU, or any of your privileges as a student or employee at CWU. If at any point after you begin the study you decide you no longer want to participate, you may withdraw from it with no penalty by simply exiting your web browser.

Other important information:

If you have further questions, please contact the principal investigator, Sydney Jensen by email (sydney.jensen@cwu.edu) or her faculty sponsor, Dr. Susan Lonborg (susan.lonborg@cwu.edu).

Reasonable and appropriate safeguards have been used in the creation of the web-based survey to maximize the confidentiality and security of your response, however, when using information technology, it is never possible to guarantee complete privacy.

I affirm that I have read the Online Consent Information displayed above, that I AM AT LEAST 18 YEARS OF AGE, and that by submitting answers to this survey I am consenting to participate in this study.

Appendix C

Demographic Information

Age: _____

Gender: _____

Sexual Orientation: _____

Ethnicity: _____

Religious Affiliation: _____

Occupation: _____

Highest level of education completed:

a) Did not receive a diploma or GED

b) Received only a high school diploma or GED

c) Some college

d) Bachelor degree

e) Master degree

f) Doctorate degree/Postdoc

Please indicate how many **hours on average per week** you engage in *weight-lifting* (machines, body-weight exercises, or free-weights, does not include heavy lifting involved in your occupation or household chores) for exercise:

_____

Please **specify what type** of *weight-lifting* you primarily engage in:

_____

Primary **motivation** for engaging in this activity:

a) Stress management

b) Revitalization

c) Enjoyment

d) Challenge

e) Social recognition

f) Affiliation

g) Competition

h) Health pressures

i) Ill-health avoidance

j) Positive health

k) Weight management

l) Appearance

m) Strength and endurance

n) Nimbleness

Please indicate how many **hours on average per week** you engage in *cardiovascular exercise* (speed walking, jogging, running, elliptical, cycling/biking, hiking, rock-climbing, dancing, Zumba, Jazzercise, jumping-rope, yoga, or any other activity that you engage in that increases heartrate with the deliberate goal of exercise in mind):

_____

Please **specify what type** of *cardiovascular exercise* you primarily engage in:

_____

Primary **motivation** for engaging in this activity:

a) Stress management
b) Revitalization
c) Enjoyment
d) Challenge
e) Social recognition
f) Affiliation
g) Competition
h) Health pressures
i) Ill-health avoidance
j) Positive health
k) Weight management
l) Appearance
m) Strength and endurance
n) Nimbleness

Please indicate how many **hours per week on** average you engage in *other activities* such as personal hobbies (book reading, gardening, creative/artistic talents, organized social/academic clubs, etc.):

_____

Please **specify what type** of *other activities* you primarily engage in:

_____

Primary motivation for engaging in this activity:

a) Stress management

b) Revitalization

c) Enjoyment

d) Challenge

e) Social recognition

f) Affiliation

g) Competition

h) Health pressures

i) Ill-health avoidance

j) Positive health

k) Weight management

l) Appearance

m) Strength and endurance

n) Nimbleness

Have you participated in this online study more than once?

a) YES, this is not the first time I have participated in this online study.

b) NO, this is the first and only time I will participate in this study.

Appendix D

Post-Study Information

The purpose of this study was to examine relationships between participants' types of exercise, their primary motivations for exercise, and their attitudes toward sexism. Because sexism has been shown to negatively affect women's work performance, we wanted to explore the possibility that different types of, and motivations for, exercise might moderate women's attitudes toward sexism. If exercise is associated with attitudes toward sexism, the next step in research may be to examine the relationships of these variables to actual work performance.

We appreciate your participation in this study. If you have questions or concerns about the study or wish to learn more about the results when they are available, please feel free to contact the researcher, Sydney Jensen, by email (sydney.jensen@cwu.edu). You may also contact her faculty sponsor, Dr. Susan Lonborg, by email (susan.lonborg@cwu.edu) should you have questions or concerns about this study. We anticipate that the results of this study will be available in September 2016 should you wish to request them.

Appendix E

Types of and Motivations to Exercise

WL Hours	Weight Lifting Motivation	CA Hours	Cardio Activity Motivation	Hobby Hrs	Hobby Motivation
0	do not engage in weight-lifting	15	weight management	0	stress management
0	do not engage in weight-lifting	10	positive health	5	enjoyment
0	do not engage in weight-lifting	0	do not engage in weight-lifting	10	do not engage in weight-lifting
0	do not engage in weight-lifting	10	positive health	10	enjoyment
0	do not engage in weight-lifting	0	do not engage in weight-lifting	50	enjoyment
0	do not engage in weight-lifting	0	do not engage in weight-lifting	70	health pressures
0	do not engage in weight-lifting	0	do not engage in weight-lifting	10	enjoyment
0	do not engage in weight-lifting	0	do not engage in weight-lifting	15	enjoyment
0	do not engage in weight-lifting	0	do not engage in weight-lifting	1	enjoyment
0	do not engage in weight-lifting	1	ill-health avoidance	35	enjoyment
0	NA	7	positive health	10	enjoyment
0	do not engage in weight-lifting	5	revitalization	1	stress management
0	do not engage in weight-lifting	7	weight management	5	stress management
0	do not engage in weight-lifting	1	enjoyment	30	enjoyment
0	NA	4	strength and endurance	14	enjoyment
0	do not engage in weight-lifting	3	NA	15	enjoyment
0	strength and endurance	6	strength and endurance	10	stress management
0	NA	4	stress management	1	enjoyment
0	weight management	1	stress management	5	enjoyment
0	do not engage in weight-lifting	1	stress management	1	enjoyment
0	do not engage in weight-lifting	4	weight management	6	enjoyment
0	strength and endurance	5	weight management	4	revitalization
0	do not engage in weight-lifting	3	positive health	4	stress management
0	do not engage in weight-lifting	1	health pressures	15	challenge
0	do not engage in weight-lifting	5	weight management	20	enjoyment
0	do not engage in weight-lifting	3	stress management	5	stress management
0	do not engage in weight-lifting	3	stress management	6	enjoyment
0	NA	4	positive health	4	enjoyment
0	do not engage in weight-lifting	2	enjoyment	34	stress management
0	do not engage in weight-lifting	2	revitalization	7	enjoyment
0	do not engage in weight-lifting	1	positive health	3	enjoyment
0	do not engage in weight-lifting	3	ill-health avoidance	20	enjoyment

WL Hours	Weight Lifting Motivation	CA Hours	Cardio Activity Motivation	Hobby Hrs	Hobby Motivation
0	do not engage in weight-lifting	2	positive health	4	stress management
0	do not engage in weight-lifting	2	positive health	10	enjoyment
0	appearance	2	positive health	2	revitalization
1	strength and endurance	5	strength and endurance	5	affiliation
1	appearance	3	weight management	10	enjoyment
1	weight management	2	weight management	5	stress management
1	strength and endurance	2	weight management	24	enjoyment
1	strength and endurance	4	stress management	20	enjoyment
1	positive health	0	enjoyment	5	enjoyment
1	ill-health avoidance	3	ill-health avoidance	7	enjoyment
1	appearance	3	weight management	5	enjoyment
1	appearance	2	nimbleness	3	enjoyment
1	weight management	2	weight management	30	enjoyment
1	appearance	5	appearance	6	enjoyment
1	stress management	3	weight management	3	enjoyment
1	positive health	2	positive health	5	enjoyment
1	challenge	2	enjoyment	6	revitalization
2	health pressures	2	health pressures	10	enjoyment
2	strength and endurance	2	strength and endurance	2	enjoyment
2	positive health	5	positive health	5	enjoyment
2	appearance	1	enjoyment	32	challenge
2	strength and endurance	6	strength and endurance	5	stress management
2	appearance	6	enjoyment	8	stress management
2	stress management	6	positive health	8	enjoyment
3	stress management	25	weight management	30	enjoyment
3	positive health	5	positive health	10	stress management
3	health pressures	2	strength and endurance	0	NA
3	appearance	5	appearance	3	enjoyment
3	health pressures	5	social recognition	1	stress management
3	appearance	6	appearance	8	enjoyment
3	strength and endurance	5	weight management	8	enjoyment
3	weight management	2	weight management	6	enjoyment
4	stress management	7	stress management	5	enjoyment
4	ill-health avoidance	5	ill-health avoidance	5	enjoyment
4	positive health	2	weight management	3	enjoyment
4	appearance	3	weight management	0	affiliation
4	strength and endurance	5	stress management	2	social recognition
5	appearance	2	strength and endurance	4	enjoyment
5	strength and endurance	0	appearance	2	enjoyment
5	positive health	5	positive health	5	revitalization
5	strength and endurance	9	weight management	9	enjoyment
5	stress management	2	enjoyment	10	enjoyment
5	positive health	2	weight management	40	enjoyment
5	enjoyment	10	stress management	10	enjoyment
7	positive health	15	strength and endurance	17	enjoyment
12	positive health	6	weight management	10	stress management
15	challenge	20	enjoyment	0	do not engage in weight-lifting